

REMARKS

Claims 1-20 and 49-52 have been examined. Claim 1 is cancelled by the current amendment. New claims 53-62 have been added and represent claims 15, 16 and 18-20 written to depend solely from claims 3 and 9.

Applicants thank the Examiner for conducting the telephone interview on January 30, 2006.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 3 and 9 are allowed over the references of record. Applicants also thank the Examiner for indicating that claims 15, 16 and 18-20 would be allowed if rewritten to depend solely from claims 3 and 9.

Substance of Interview

This Interview Summary Record briefly summarizes the telephone interview conducted on January 30, 2005 between Applicant's representative and Examiner Dickey. Applicants respectfully submit the following as a Statement of Substance of the Interview.

During the January 30 interview, Applicant's representative discussed with Examiner Dickey the outstanding rejections of independent claims 2, 8 and 49-52, and the disclosures of the applied references Wu et al., Ahn et al. and Lane.

Applicants' representative argued that Wu does not disclose a lower electrode having a cup shape provided in a hole in an interlayer insulating film. The Examiner agreed, indicating that Wu only disclosed a plug within the interlayer insulating film. The Examiner suggested possible ambiguity within the claim language as to why he applied Wu et al., indicating that it was not clear whether the side wall was within the hole in the interlayer film.

Further, Applicants' representative argued that either Lane or Ahn must show a lower electrode connected along its entire bottom portion to anticipate claim 8. The Examiner disagreed indicating that under his interpretation of this claim, only a portion of the entire bottom surface need be connected in order to anticipate this claim.

Claim Rejections - 35 U.S.C. § 112, First Paragraph

The Examiner rejected claims 49-52 under § 112, first paragraph for failing to comply with the written description requirement. The Examiner alleges that in the semiconductor MIM capacitor of the application as filed, the hole is formed only in an interlayer insulating layer. Claim 49 has been amended accordingly to recite that the hole is formed in an insulating interlayer film.

Claim Rejections - 35 U.S.C. § 102 (e) - Ahn et al.

The Examiner rejected claims 8, 15/8, 16/8, 19/8 and 20/8 under § 102(e) as being anticipated by Ahn et al. (US Published Application 2003/0124812; "Ahn"). Applicants respectfully traverse this rejection because Ahn fails to disclose, at least, a lower electrode where only an entire bottom of the lower electrode is connected to the second metal layer.

In making this rejection, the Examiner states "and said lower electrode 29a is connected at only (note that no part of said lower electrode 29a touches said second metal layer 19 except part of said entire bottom) an entire bottom of said lower electrode. (*Office Action*, pg. 4) Applicants agree with the Examiner that only a part of the lower electrode 29a is connected to the second metal layer 19. (*See Ahn*, FIG. 11)

However, in contrast to the disclosure of Ahn, claim 8 recites that the lower electrode is connected to the second metal layer along an entire bottom of the lower electrode and at no other portion. Because a portion of the bottom of lower electrode 29a of Ahn contacts the interlayer

insulating film 13, the entire bottom is not in contact with the second metal layer 19. (FIG. 11)

Thus, Applicants respectfully submit that independent claim 8 is allowable over the applied reference Ahn. Furthermore, claims 15/8, 16/8, 19/8 and 20/8 are allowable, at least, by virtue of their dependency.

Claim Rejections 35 U.S.C. § 102(b) - Lane

The Examiner rejected claims 8, 15/8, 18/8 and 20/8 under § 102(b) as being anticipated by Lane (US Published Application 2002/0048870). Applicants respectfully traverse this rejection because Lane fails to disclose a lower electrode connected to the second metal layer along an entire bottom of the lower electrode and at no other portion, as recited in claim 8.

Similar to the approach taken with Ahn above, the Examiner states that Lane discloses where “said lower electrode 70 is connected at only (note that no part of said lower electrode 70 touches said second metal layer 52 except part of said entire bottom). However, in contrast to the Examiner’s assertion, the second metal layer 52 does not contact the lower electrode 70 at all. (See FIGS. 9 & 14) But, the lower electrode 70 does contact the conductive barrier 60. However, lower electrode 70 contacts conductive barrier 60 at both a bottom and a side portion of the electrode (See FIGS. 9 & 14), whereas claim 8 recites contact along an entire bottom and at no other portion.

Thus, Applicants respectfully submit that independent claim 8 is allowable over the applied reference Lane. Furthermore, claims 15/8, 18/8 and 20/8 are allowable, at least, by virtue of their dependency.

Claim Rejections - 35 U.S.C. § 102(b)

The Examiner rejected claims 1, 2, 15/1, 15/2, 16/1, 16/2, 18/1, 18/2, 19/1, 19/2, 20/1 and 20/2 under § 102(b) as being anticipated by Wu (US 6,084,261). Applicants respectfully

traverse this rejection because Wu fails to disclose, at least, wherein said lower electrode has a cup shape provided along a side wall portion of a hole in an interlayer insulating film and a bottom portion of the hole provided in an interlayer insulating film, as recited in claim 2.

The Examiner alleges that the lower electrode 118-122-126 has a cup shape provided along a side wall portion and a bottom portion of a hole provided in an interlayer insulating film 114. In contrast, Applicants submit that Wu clearly discloses that the lower electrode 118-122-126 forms a fork shaped capacitor. (col. 2, lines 23-25) Furthermore, the only the bottom portion 118 of the lower electrode 118-122-126 lies within a hole of the interlayer insulating film 112-114, and this bottom portion does not form a cup shape, but instead a cylindrical shape as it fills this hole. (col. 3, lines 21-22; *see* FIG. 9) Further, the upper portions of the DRAM capacitor of Wu (fork sections), lie outside or above the interlayer insulating film 112-114. Therefore, Wu fails to disclose a lower electrode having a cup shape provided along a side wall portion and a bottom portion of a hole in an interlayer insulating film.

Thus, Applicants respectfully submit that independent claim 2 is patentable over the applied references. Further, Applicants respectfully submit that rejected dependent claims 15/2, 16/2, 18/2, 19/2 and 20/2 are allowable *at least* by virtue of their dependency.

Conclusion

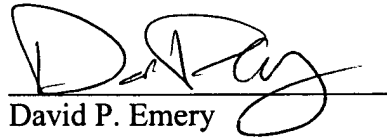
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.114(c)
U.S. Appln No. 10/777,704

Atty Dkt No. Q79889

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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